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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/295,637	04/20/99	HENDERSON J	428

MM42/0920

WILLIAM E HEIN
P O BOX 335
LOVELAND CO 80539

EXAMINER	
WIGGINS,J	
ART UNIT	PAPER NUMBER
2856	

DATE MAILED: 09/20/99

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

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ART UNIT	PAPER NUMBER
2856	03

DATE MAILED: 09/20/99

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

☑ This application has been examined ☑ Responsive to communication filed on 04/20/99 ☐ This action is made final.

A shortened statutory period for response to this action is set to expire 3 month(s), 0 days from the date of this letter.
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

1. ☑ Notice of References Cited by Examiner, PTO-892.
2. ☑ Notice of Draftsman's Patent Drawing Review, PTO-948.
3. ☐ Notice of Art Cited by Applicant, PTO-1449.
4. ☐ Notice of Informal Patent Application, PTO-152.
5. ☐ Information on How to Effect Drawing Changes, PTO-1474.
6. ☐ _____.

Part II SUMMARY OF ACTION

1. ☑ Claims 1-4 and 7-10 are pending in the application.

   Of the above, claims _____ are withdrawn from consideration.

2. ☐ Claims _____ have been cancelled.
3. ☐ Claims _____ are allowed.
4. ☑ Claims 1-4 and 7-10 are rejected.
5. ☐ Claims _____ are objected to.
6. ☐ Claims _____ are subject to restriction or election requirement.
7. ☑ This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.
8. ☐ Formal drawings are required in response to this Office action.
9. ☐ The corrected or substitute drawings have been received on _____. Under 37 C.F.R. 1.84 these drawings are ☐ acceptable; ☐ not acceptable (see explanation or Notice of Draftsman's Patent Drawing Review, PTO-948).
10. ☐ The proposed additional or substitute sheet(s) of drawings, filed on _____. has (have) been ☐ approved by the examiner; ☐ disapproved by the examiner (see explanation).
11. ☐ The proposed drawing correction, filed _____, has been ☐ approved; ☐ disapproved (see explanation).
12. ☐ Acknowledgement is made of the claim for priority under 35 U.S.C. 119. The certified copy has ☐ been received ☐ not been received ☐ been filed in parent application, serial no. _____ ; filed on _____.
13. ☐ Since this application apppears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.
14. ☐ Other

EXAMINER'S ACTION

Part III DETAILED ACTION

Examiner's Office Action

Drawings

1. This application has been filed with informal drawings which are acceptable for examination purposes only. Formal drawings will be required when the application is allowed.

Specification

2. The disclosure is objected to because of the following informalities:

On Page 01, line 01, before the words "The invention" please consider inserting the following introductory priority statement: --- This application for U.S. Patent is a divisional application of the prior parent application Serial No. 08/863,107 with filing date of 05/23/97, which became U.S. Patent No. 5,895,842 granted on 04/20/99. ---

On Page 07, line 11 of the specification; please consider replacing the mis-labelled part "position coil 20" with the following intended correct form: --- position coil 16 ---

On Page 07, line 13 of the specification; please consider replacing the mis-labelled part "Cover 10" with the following intended correct form: --- Cover 22 ---

On Page 13, line 01 of the Abstract Sheet; after the word "analyzer", please consider inserting the following phrase: --- of the type in which a mechanical probe member is immersed in a fluid or gel and driven to impart a desired oscillating motion to such fluid or gel whose viscoelastic properties are to be determined ---

On Page 11, claim 4, line 02; before the word "spring", please consider inserting the following text: --- planar ---

Appropriate correction is requested or required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 2 and 7 are rejected under 35 U.S.C. § 102(b) as being clearly anticipated by Fitzgerald, J. et al..

The Applicant is directed to the description given at Column 5, lines 5-27 and Column 7, lines 6-32 & lines 39-65 along with Figures 1-2 and 2a, 2b, 3a and 3b for relevant details. In regards to the means for restricting motion limitation of claim

1, please see the isolation plate (part 9), which comprises a mechanical stop means may be corrugated or ribbed as shown in Figure 3a so as to enhance directional strength to the probe vibration characteristics. In regards to claim 7, the stop means for limiting deflection of a probe member is shown by housing base 13 in Figure 1 via the aperture cut-out in such base plate, where it is obvious that the vibrating bar can not vibrate enough in amplitude to contact the side wall of such aperture.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

> A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
>
> Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

6. Claim 4 is rejected under 35 U.S.C. § 103 as being unpatentable over Fitzgerald, J. et al., in view of Smith, N. et al..

The prior art of Fitzgerald et al. teaches using a viscometer transducer for making fluid viscoeleastic property measurements in an oscillating probe apparatus that covers most features of the instant invention except for (1) having a circular spring coupled to the oscillating probe so as to help restrict motion of such probe in all directions other than the intended motion along the probe axis. However, the prior art of Smith et al. discloses the concept of installing a spring as an elastic coupling element between the liquid sample and the vibration oscillating source (oscillation generator), where the liquid sample in a can is subjected to torsional oscillations about a vertical axis- please see part 11 in Figure 1 thereof as attached to an arm 8 along with Column 2, lines 12-30, lines 35-44, lines 47-51 & lines 57-61, plus Column 3, lines 17-26 and Column 8, lines 39-66 for pertinent details. It would have been obvious to one of ordinary skill in the art to consider using a spiral or circular spring as a motion restricting means since these elastic elements are commonly known to provide a linear restoring force F according to Hooke's Law (F= -kx for "small

deflections or extensions x") in inter-component coupling application, where the desired strength of such elastic coupling is easily adjusted by choosing spring materials and shapes tailored to yield a desired k coefficient, and where the direction of any applied spring force is known to be limited along the axis of its own extension- The use of such spring elements to provide a stabilizing or balance force that opposes any changing force or other externally applied force is Notoriously Old and Well Known for any skilled artisan in the prior art.

7. Claims 3 and 8 are rejected under 35 U.S.C. § 103 as being unpatentable over Fitzgerald, J. et al., as applied to claims 1 and 7 above, and further in view of Williams, J. et al..

As presented in the arguments and grounds for rejection given above at Paragraphs 4 & 6, the prior art of Fitzgerald et al. teaches all features of the instant invention except for having a disposable probe portion and a non-diposable probe portion. However, the prior art of Williams et al. teaches the use of a disposable probe, as attached to one end of an oscillating lever [with strain gauge and displacement transducer

thereon]- please see Figure 1 where parts 14 and 16 comprise the disposable probe portion, but parts 20 and 16 form the nondisposable probe portions of an oscillating lever and attachment chuck, respectively, as described in their disclosure at Column 2, lines 17-32 and Column 3, lines 26-36 {which please see for relevant details}. It would have been obvious to one of ordinary skill in the art at the time of the invention to consider adding such disposability feature for an expendable or less costly portion of a probe assembly since this structural mating of compatible, complementary parts leads to cheaper replacement costs, in addition to more versatile cleaning and installation procedures (whereby a "soiled", wetted or "poisoned" probe surface may be replaced, removed or diposed without changing the entire integrated probe.

8. Claims 9 and 10 are rejected under 35 U.S.C. § 103 as being unpatentable over Fitzgerald, J. et al., as applied to claims 2 and 7 above, and further in view of Husar, D..

As presented in the arguments and grounds for rejection given above at Paragraphs 4 & 6, the prior art of Fitzgerald et al. teaches all features of the instant invention except for having the stop means [for limiting mechanical deflection of

probe] be formed by the combination of a cover and magnet. However, the prior art of Husar teaches the use of an magnetic field [as generated by a Hall Effect sensor used for oscillation sensing] as a proximity sensor and magnetic stop sensor- please see Column 6, lines 17-23 and Column 5, line 49 - Column 6, line 13 (together with Column 6, lines 41-48 re: flat spring leaf), plus parts 9 and 10 as the magnetic field Hall sensor in Figure 2 for relevant details. It would have been obvious to one of ordinary skill in the art at the time of the invention to consider adding such a magnetic field sensitive sensor as a non-mechanical stopper means since the non-contact operation of the stop means/proximity probe ensures that the oscillation/vibration source (or driver) will not have any of its energy devoted to inducing free oscillations in the fluid sample & mechanical probe impeded/reduced by such frictional contact losses. As regards the combination of a duo-stop provided by combining both a mechanical stop means [via cover, frame cutout, sleeve, bracket, split fork, finger bar or protuding bolt end] and a magnetic force field stop - the Examiner notes that it is common practice to provide a back -up motion limiter [as safety factor] in order to avoid part damage loosening or disengagement, equipment failure and/or waste

of kinetic or rotational energy imparted into system [in case of excess excitation or resonant action in the driven probe member] Just as the selection of either movement-limiting stop means is regarded as being arbitrary and largely a matter of design choice, then so also would be the decision of installing both movement-limiting stop means into the same viscometer system.

Claim Objections

9. The claims are objected to because they lack a proper introduction. The present Office practice is to insist that each claim must be the object of a sentence starting with "I (or we) claim", "The invention claimed is" (or the equivalent). MPEP § 68.01(m).

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The references cited on the accompanying form PTO-892 are listed to show examples of state of the art transducers, analyzers and sensors for measuring viscosity and/ or viscoelasticity of a fluid/gel sample [with an oscillating probe part

immersed into such fluid/gel to cause some oscillation reaction in the fluid/gel sample against the frictional resistance/damping given by same fluid/gel sample], which share one or more features in common with the instant invention.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to J. David Wiggins whose telephone number is (703) 305-4884. The examiner can normally be reached on Monday to Friday from 9AM to 7PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron E. Williams, can be reached on (703) 305-4705. The fax phone number for this Group is (703) 308-7382.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-4900.

JDW

WIGGINS/jdw
September 17, 1999

Hezron E. Williams

Hezron Williams
Supervisory Patent Examiner
Technology Center 2800